 **TOYOTA CENTRAL R&D LABS., INC.**

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Company Profile

Stockholder Companies & Technical Collaboration Contractor Companies

Stockholder Companies

- Toyota Industries Corporation
- Toyota Motor Corporation
- Aichi Steel Corporation
- JTEKT Corporation
- Toyota Auto Body Co., Ltd.
- Toyota Tsusho Corporation
- Aisin Seiki Co., Ltd.
- Denso Corporation
- Toyota Boshoku Corporation

Technical Collaboration Contractor Companies

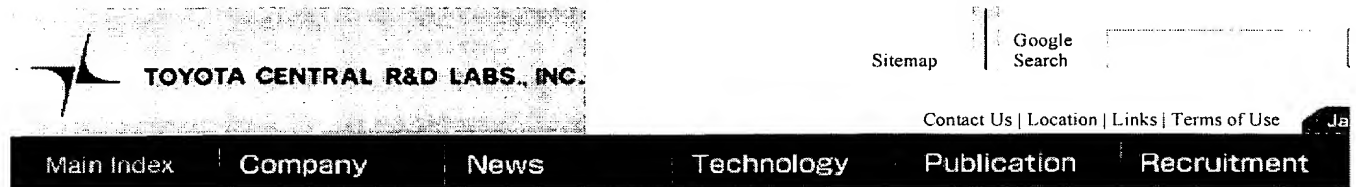
- Kanto Auto Works, Ltd.
- Toyoda Gosei Co., Ltd.

Other 38 Companies

(January)

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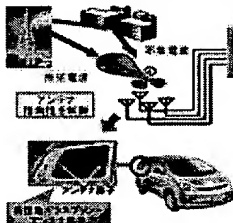
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Technology

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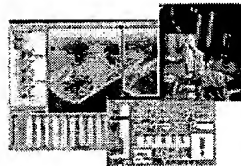
@ System Engineering & Electronics

Newest Technology



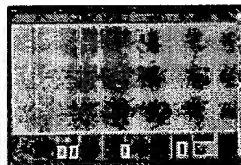
Adaptive Reception Technique for Interference Cancellation

We developed the mobile reception system for terrestrial broadcast. In order to receive only the desired radio wave, the directional antennas is controlled adaptively.
(Partial joint research with Toyota Motor Corporation)



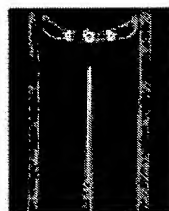
Mill Plan: Planning Software for the Machining of Mold

We have promoted the automation of CAM (Computer Aided Manufacturing) by finding the most efficient mold and die manufacturing process using automated computer planning.



Insulated Gate Bipolar Transistor for Hybrid Vehicles (I

We developed the "IGBT-Insulated Gate Bipolar Transistor", semiconductor power device technology. This device was used for "Prius", the world's first mass-produced vehicle.



Self-Formation of Three-Dimensional Optical Circuit

We have developed a low-cost production technology for an interconnecting circuits that does not require a lens or a precise positioning process. Using this technology, we are also working toward long-distance communications of 100 meters or more utilizing an LED light
(Joint research with Toyoda Gosei Co., LTD)

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Self-Formation of Three-Dimensional Optical Circuit

Aim

To develop a low-cost production technology for an optical interconnecting circuits that does not require a lens or a precision positioning process. Using this technology, we are also working toward long-distance communications of 100 meters or more utilizing an LED light source.

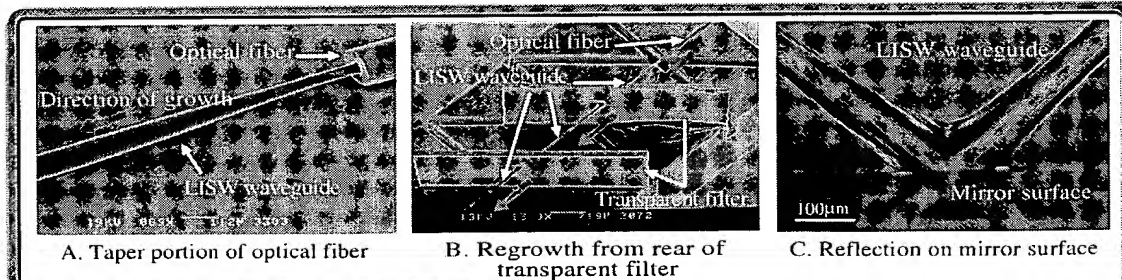
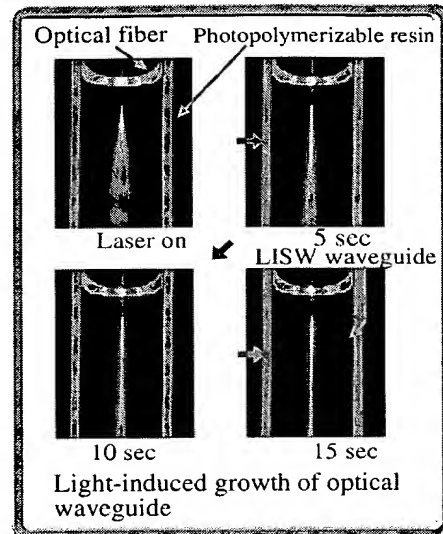
Principle

Using the outgoing light from the optical fiber to polymerize the photopolymerizable resin, utilize a phenomenon* which automatically forms the three-dimensional optical circuit (waveguide).

* Light-Induced Self-Written (LISW) waveguide

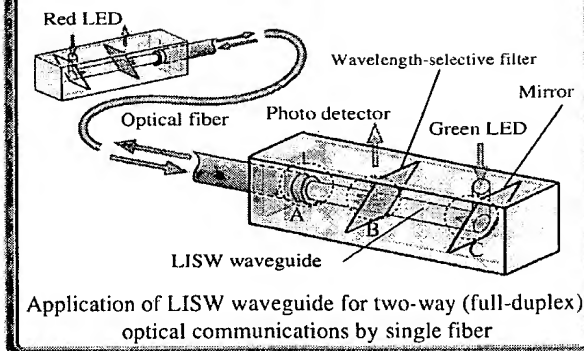
Characteristics

- Three-dimensional growth is possible using various filters and/or mirrors
- Passive alignment made possible through integrated forming with casing
- Low propagation loss (<1.0 dB/cm)
- Applicable to wide range of optical fiber diameters (50-1000 μm)



Application

- Two-way optical communication by single fiber
- Wavelength-multiplexing optical communication
- Optical networks in automobiles and homes
- High speed optical networks in offices and factories



● Joint research with Toyota Gosei Co., LTD